

**What Is Claimed Is:**

1           1.    A method of determining a track pitch of a disc in a  
2 disc drive, comprising the steps of:  
3           reading first time information and counting a first frame  
4           count of one revolution at a predetermined first  
5           position with a first radius to the center of the  
6           disc ;  
7           reading second time information and counting a second frame  
8           count of one revolution at a second position with a  
9           second radius to the center of the disc ;  
10          calculating the second radius according to the first frame  
11          count, the second frame count and the first radius;  
12          and  
13          calculating a track pitch of the disc according to the first  
14          radius, the second radius, the first time  
15          information, the second time information and a linear  
16          velocity of the disc drive.

1           2.    The method as claimed in claim 1 wherein the first  
2 radius is the distance from a beginning position of a data area  
3 of the disc to the disc center.

1           3.    The method as claimed in claim 1 wherein the second  
2 radius is calculated according to the following equation,

3           
$$r_1 = \frac{F_1}{F_0} \times r_0 ,$$

4           wherein  $r_1$  is the second radius,  $r_0$  is the first radius,  
5            $F_0$  is the first frame count, and  $F_1$  is the second  
6           frame count.

1           4.     The method as claimed in claim 1 wherein the first time  
2     information and the second time information are recorded in  
3     Q-Code.

1           5.     The method as claimed in claim 1 wherein the track  
2     pitch is calculated according to the following equation,

3           
$$p = \frac{\pi r_1^2 - \pi r_0^2}{(N_1 - N_0) \times 60 \times v},$$

4     wherein  $p$  is the track pitch,  $r_0$  is the first radius,  $r_1$   
5           is the second radius,  $N_0$  is the first time  
6           information,  $N_1$  is the second time information, and  
7            $v$  is the linear velocity.

1           6.     A disc drive, comprising:  
2     an optical head; and  
3     a processor used to perform the steps of:  
4     moving the optical head to a first position with a first  
5           radius to the center of a disc;  
6     reading first time information and counting a first frame  
7           count of one revolution;  
8     moving the optical head to a second position with a second  
9           radius to the center of the disc;  
10    reading second time information and counting a second frame  
11           count of one revolution;  
12    calculating the second radius according to the first frame  
13           count, the second frame count and the first radius;  
14           and  
15    calculating a track pitch of the disc according to the first  
16           radius, the second radius, the first time

17 information, the second time information and a linear  
18 velocity of the disc drive.

1 7. The disc drive as claimed in claim 6, wherein the first  
2 radius is the distance from a beginning position of a data area  
3 of the disc to the disc center.

1 8. The disc drive as claimed in claim 6 wherein the second  
2 radius is calculated according to the following equation,

3 
$$r_1 = \frac{F_1}{F_0} \times r_0,$$

4 wherein  $r_1$  is the second radius,  $r_0$  is the first radius,  
5  $F_0$  is the first frame count, and  $F_1$  is the second  
6 frame count.

1 9. The disc drive as claimed in claim 6 wherein the first  
2 time information and the second time information are recorded  
3 in Q-Code.

1 10. The disc drive as claimed in claim 6 wherein the track  
2 pitch is calculated according to the following equation,

3 
$$p = \frac{\pi r_1^2 - \pi r_0^2}{(N_1 - N_0) \times 60 \times v},$$

4 wherein  $p$  is the track pitch,  $r_0$  is the first radius,  $r_1$   
5 is the second radius,  $N_0$  is the first time  
6 information,  $N_1$  is the second time information, and  
7  $v$  is the linear velocity.

1 11. A method for determining disc track pitch, for use in  
2 a disc device, comprising the steps of:

3 counting a first frame count of one revolution  
4 corresponding to a first position with a first radius

5           to a center of a disc, in which the first radius is  
6           the distance from a beginning position of a data area  
7           of the disc to the disc center;  
8       counting a second frame count of one revolution  
9           corresponding to a second position with a second radius  
10          to the center of the disc;  
11       calculating the second radius according to the first frame  
12          count, the second frame count and the first radius;  
13       reading second time information of the second position; and  
14       calculating a track pitch of the disc according to the first  
15          radius, the second radius, the second time  
16          information and a linear velocity;  
17       wherein the first radius is the distance from a beginning  
18          position of a data area of the disc to the disc center.

1       12. The method for determining disc track pitch as claimed  
2       in claim 11 wherein the second radius is calculated according  
3       to the following equation,

$$4 \quad r_1 = \frac{F_1}{F_0} \times r_0,$$

5       wherein  $r_1$  is the second radius,  $r_0$  is the first radius,  
6        $F_0$  is the first frame count, and  $F_1$  is the second  
7       frame count.

1       13. The method for determining disc track pitch as claimed  
2       in claim 11 wherein the second time information is recorded in  
3       Q-Code.

1       14. The method for determining disc track pitch as claimed  
2       in claim 11 wherein the track pitch is calculated according to  
3       the following equation,

4           
$$p = \frac{\pi r_1^2 - \pi r_0^2}{N_1 \times 60 \times v},$$

5           wherein  $p$  is the track pitch,  $r_0$  is the first radius,  $r_1$   
6           is the second radius,  $N_1$  is the second time  
7           information, and  $v$  is the linear velocity.

1           15. A method for determining disc track pitch, for use in  
2           a disc device having an optical head moving according to a track  
3           pitch, said method comprising the steps of:  
4           counting a first frame count of one revolution  
5           corresponding to a first position with a first radius  
6           to a center of a disc;  
7           reading first time information of the first position;  
8           counting a second frame count of one revolution  
9           corresponding to a second position with a second  
10          radius to the center of the disc;  
11          reading second time information of the second position;  
12          calculating the second radius according to the first frame  
13          count, the second frame count and the first radius;  
14          and  
15          calculating a track pitch of the disc according to the first  
16          radius, the second radius, the first time  
17          information, the second time information and a linear  
18          velocity.